UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EPA United States Environmental Protection Agency **Office of Pesticide Programs**

Antimicrobials Division (AD)

2/19/2015

MEMORANDUM

Subject: Acute Toxicity Review for **EPA Reg # 2568-RNG**
Product name**: SEAQUANTUM ULTRA SP LIGHT RED**
DP#: **423296**

From: Narayanan Parthasarathy, Chemist
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Thru: Karen P. Hicks, CT Team Leader
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To: Seiichi Murasaki RM33/ Karen Leavy
Regulatory Management Branch I
Antimicrobials Division (7510 P)

Applicant: JOTUN PAINTS INC

Formulation from Label

Active Ingredient	**% by wt.**
Cuprous Oxide	48.20
Copper Pyrithione	2.23
Other Ingredients	49.57
Total	100.0

2/20/2015

I BACKGROUND: JOTUN PAINTS Inc., has submitted a complete set of six acute toxicity studies to support the registration # **2568-RNG** of their new product, **SEAQUANTUM ULTRA SP RED**. The toxicological studies that were conducted to support this product are under the name **"SeaQuantum Ultra SP, 4059-79B"** which is same as **SEAQUANTUM ULTRA SP RED.** The studies were conducted by Stillmeadow Inc.,

II RECOMMENDATION:

Each of six acute toxicity studies is acceptable.

The acute toxicity profile for File Symbol 2568-RNG is currently

Study	MRID Number	Toxicity Category	Study Status
Acute Oral Toxicity	49468305	III	Acceptable
Acute Dermal Toxicity	49468306	III	Acceptable
Acute Inhalation Toxicity	49468307	III	Acceptable
Primary Eye Irritation	49468308	II	Acceptable
Primary Skin Irritation	49468309	III	Acceptable
Skin Sensitization	49468310	Not a sensitizer	Acceptable

III LABELING:

1. **The signal word is "Warning" "Hazards to Humans and Domestic Animals"**

2. **The precautionary Statements must state:**

   "Causes substantial but temporary eye injury. Harmful if swallowed, absorbed through skin or inhaled. Do not get in eyes or on clothing. Wear appropriate protective eyewear such as goggles, face shield, or safety glasses. Avoid contact with skin. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, and chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse".

   "Wear long-sleeved shirt and long pants, socks, shoes, waterproof or chemical-resistant gloves".

3. **The First Aid statements must state:**

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.

IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

NOTICE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

GENERAL INFORMATION: Have the product container or label with you when calling a poison control center or doctor or going for treatment. For non-emergency and general information on product use, etc., information pertaining to this product, call the National Pesticides Information Center at 1-800-858-7378 (NPIC web site: www.npic.orst.edu). For emergencies, call the poison control center 1-800-222-1222.

DATA REVIEW FOR ACUTE ORAL TOXICITY TESTING (§ 81-1, 870.1100)

Product Manager: Seiichi Murasaki RM33/Karen Leavy **Reviewer:** N. Parthasarathy
MRID No: 49468305 **Study Completion Date:** 08/25/2014
Report No: 17867-13

Testing Laboratory: STILLMEADOW Inc.
Author: Vincent Murphy, PhD, DABT

Quality Assurance (40 CFR § 160.12): Included

Test Material: SeaQuantum Ultra SP, 4059-79B. Red viscous liquid. Stable for the duration of testing period
Dosing: Oral gavage dose of 2020mg/kg b.w

Species: Albino rat; Sprague-Dawley.
Weight: 186-255g **Age:** 7-8 weeks
Source: Texas Animal Specialties.
Housing: Temperature Range: 20-23^0 C
Humidity Range: 35-91%
Photoperiod: 12-hour light/dark cycle.

Summary:

1. **LD_{50} (mg/kg):** >2020 **Males** --------
Females >2020 mg/kg b.w.
Combined --------

2. **The estimated LD_{50} is** >2020
3. **Toxicity Category:** III **Classification:** Acceptable

Procedure (Deviations from §81.1): One animal weight was over protocol range. Relative humidity was outside the protocol range.
Test Procedure: The test substance was administered as received and was not diluted (oral gavage). The administered volume is 1.09 mL/kg. The animals were observed for mortality, signs of gross toxicity, and behavioral changes at least three times on the day of dosing and at least once daily for 14 days after dosing.

Results:

Dosage (mg/kg)	(Number Deaths/Number Tested)		
	Males	Females	Combined
2020	---------	1/5	---------

Observations: All survived animals appeared normal. One animal that died had clinical signs of activity decrease, nasal/ocular discharge, piloerection, polyuria and rapid breathing.

Clinical and Mortality: One animal that died revealed wet and stained pelvic area. The surviving animals revealed no observable abnormalities.

DATA REVIEW FOR ACUTE DERMAL TOXICITY TESTING (§ 81-2, 870.1200)

Product Manager: Seiichi Murasaki RM33/Karen Leavy **Reviewer:** N. Parthasarathy
MRID No: 49468306 **Study Completion Date:** 08/25/2014
Report No: 17868-13

Testing Laboratory: STILLMEADOW Inc.
Author: Vincent Murphy, PhD, DABT

Quality Assurance (40 CFR § 160.12): Included

Test Material: SeaQuantum Ultra SP, 4059-79B. Red viscous liquid. Stable for the duration of testing period
Dosing: 2020 mg/kg b.w (topical application)

Species: Albino rat; Sprague-Dawley.
Weight: 260-294 g (male), 180-199 g (female). **Age:** 8 weeks
Source: Texas Animal Specialties.

Housing: Temperature Range: 19-23^0 C
Humidity Range: 33-85%
Photoperiod: 12-hour light/dark cycle.

Summary:

1. **LD_{50} (mg/kg):** >2020 mg/kg **Males:** >2020 mg/kg b.w.
Females: >2020 mg/kg b.w.
Combined: >2020 mg/kg b.w.

2. **The estimated LD_{50} is** > 2020mg/kg
3. **Toxicity Category:** III **Classification:** Acceptable

Procedure (Deviations from §81.2): Relative humidity at times outside the protocol range.
Test Procedure: All animals were treated with 1.09ml/kg of the test substance topically. The animals were observed for mortality, signs of gross toxicity, and behavioral changes at least three times on the day of dosing and at least once daily for 14 days after dosing. Observations of evidence of dermal irritation were made approximately 60min after removal of topical wrappings, and on days 4, 7, 11 and 14.

Results:

Dosage (mg/kg)	(Number Deaths/Number Tested)		
	Males	Females	Combined
2020	0/5	0/5	0/10

Observations: All animals appeared normal. Signs of skin irritation included alopecia and desquamation. Necropsy findings revealed no abnormalities.

DATA REVIEW FOR ACUTE INHALATION TOXICITY TESTING (§ 81-3, 870.1300)

Product Manager: Seiichi Murasaki RM33/Karen Leavy **Reviewer:** N. Parthasarathy
MRID No: 49468307 **Study Completion Date:** 9/3/2014
Report No: 17869-13

Testing Laboratory: Stillmeadow Inc.,
Author: Andrew Doig, MS

Quality Assurance (40 CFR § 160.12): Included

Test Material: SeaQuantum Ultra SP, 4059-79B. Red viscous liquid. Stable for the duration of testing period.

Species: Albino rat; Sprague-Dawley.
Weight: 254-323 g (Male), 175-210g (Female) **Age:** 7 weeks
Source: Texas Animal Specialities.

Housing: Temperature Range: 18-35^{0}C
Humidity Range: 31-98%
Photoperiod: 12-hour light/dark cycle.

Summary:

1. **LC_{50} (mg/L):** 0.52 < x <1.14 mg/L **Males:** 0.52 < x <1.14 mg/L
Females: 0.52 < x <1.14 mg/L
Combined: 0.52 < x <1.14 mg/L
2. **MMAD:** 1.1 -2.1 µM
3. **Toxicity Category:** III **Classification:** Acceptable

Procedure (Deviations from §81.3): None
Test Procedure: Nose-only exposure was carried out at 0.06, 0.62, 2.11 mg/L gravimetric concentration. LC_{50} results were based on 4hr exposure.

Results:

Exposure Concentration (mg/L)	(Number Deaths/Number Tested)		
	Males	Females	Combined
0.52	0/5	0/5	0/10
1.14	4/5	3/5	7/10

Chamber Atmosphere			
Dose Level mg/L	**MMAD**	**GSD**	**Particles < 4.7 µm**
0.52	1.5 µm	4.5	84.0%
1.14	2.1 µm	2.9	95.0%

Chamber Environment	
Chamber Volume	500 L
Airflow	351 LPM
Temperature	24.1-25.8^0 C
Relative Humidity	41-64%

Clinical Observations: Activity decrease, diarrhea, piloerection and salivation.

Gross Necropsy Findings: Abnormal necropsy findings in two animals surviving to terminal sacrifice and discolored lungs.

DATA REVIEW FOR PRIMARY EYE IRRITATION TESTING (§ 81-4, 870.2400)

Product Manager: Seiichi Murasaki RM33/Karen Leavy **Reviewer:** N. Parthasarathy
MRID No: 49468308 **Study Completion Date:** 8/25/2014
Report No: 17870-13

Testing Laboratory: Stillmeadow Inc.,
Author: Vincent A. Murphy, PhD, DABT.

Quality Assurance (40 CFR § 160.12): Included

Test Material: SeaQuantum Ultra SP, 4059-79B. Red viscous liquid. Stable for the duration of testing period.

Species: Albino rabbit; New Zealand White
Weight: 2.8-3.3 kg (Male), 2.9-3.5 kg (Female) **Age:** 4 months
Source: Veterinary Clinical Resources, Texas
Housing: Temperature Range: 18-35^0 C
Humidity Range: 31-98%
Photoperiod: 12-hour light/dark cycle.

Summary:

1. **Toxicity Category:** II

2. **Classification:** Acceptable

Procedure (Deviations from §81.3): None
Test Procedure: Undiluted test substance (0.1ml) was placed into the conjunctival sac of the eye. Treated eye was washed with deionized water for one minute after recording the 24-hour observation.

Results:

Observations	(number "positive"/number tested)							
	Hour	Days						
	1¶	1	2	3	4	7	14	21
Corneal Opacity	0/1	1/3	1/3	1/3	1/3	1/3	0/3	---
Iritis	0/1	0/3	0/3	0/3	0/3	0/3	0/3	---
Conjunctivae								
Redness	0/1	2/3	2/3	1/3	1/3	0/3	0/3	---
Chemosis	1/1	3/3	3/3	2/3	2/3	0/3	0/3	---
Discharge	---	---	---	---	---	--	---	---

--- = No observations at this point ¶ 2 of 3 eyes were sealed shut by test substance and could not be scored.

DATA REVIEW FOR SKIN IRRITATION TESTING (§ 81-5, 870.2500)

Product Manager: Seiichi Murasaki RM33/Karen Leavy **Reviewer:** N. Parthasarathy
MRID No: 46468309 **Study Completion Date:** 8/25/2014
Report No: 17871-13

Testing Laboratory: Stillmeadow Inc.,
Author: Vincent A. Murphy, PhD, DABT

Quality Assurance (40 CFR § 160.12): Included

Test Material: SeaQuantum Ultra SP, 4059-79B. Red viscous liquid. Stable for the duration of testing period.

Species: Albino rabbit; New Zealand White
Weight: 3.1-3.4 kg **Age:** 4 months
Sex: Female
Source: Veterinary Clinical Resources, Texas.

Summary:

1. **Toxicity Category:** III
2. **Classification:** Acceptable

Procedure (Deviations from §81.5): None

Test Procedure: On day 0, 0.5 ml of undiluted test substance (pH 6.40) was applied as a skin patch.

Results: Moderate erythema was present at each observation from 72 hours through Day 14. Edema was absent. Other dermal effects included alopecia, and staining of test sites. Based on the primary irritation index of 0.5 out of a possible 8 (1, 24, 48 and 72 hours), the test substance is rated as slightly irritating.

DATA REVIEW FOR SKIN SENSITIZATION TESTING (§ 81-6, 870.2600)
(BUEHELER METHOD)

Product Manager: Seiichi Murasaki RM33/Karen Leavy **Reviewer:** N. Parthasarathy
MRID No: 49468310 **Study Completion Date:** 8/25/2014
Report No: 17872-13

Testing Laboratory: Stillmeadow Inc
Author: Vincent A. Murphy

Quality Assurance (40 CFR § 160.12): Included

Test Material: SeaQuantum Ultra SP, 4059-79B. Red viscous liquid. Stable for the duration of testing period.

Positive Control Material: Alpha-Hexylcinnamaldehyde, 85%

Species: Guinea Pig; Hartley-Albino
Weight: 353-386 g **Age:** 5 weeks
Source: Charles River

Method: Buehler Test
Summary:

1. This Product is not a skin sensitizer 2. **Classification:** Acceptable

Procedure (Deviation from §81.6): None
Test Procedure: A skin sensitization study was conducted in guinea pigs. 0.4 ml of undiluted test substance (selected from previous screening) was topically applied to twenty guinea pigs, 10 males and 10 females (test group). Test animals were treated once weekly for three weeks (induction period). Induction treatments were on Days 1, 8, 15. Five males and five females remained untreated during the induction period of study. After a two- week rest period, all animals (both groups) were each challenged at a virgin test site with an application of 0.4ml undiluted test substance. Challenge treatment was on Day 29. Approximately 24 and 48 hours after each induction and challenge application, the animals were scored for a sensitization response (erythema).

Results:
Induction: Days 1, 8, 15 – Naïve animals scored 0; Test animals scored 0, 2, 2.
Challenge: Day 29 – Naïve animals scored 0; Test animals scored 0.

Positive Control:
Induction: Days 1, 8, 15 – Naïve animals scored 0; Test animals scored 0, 0, 0.5-1.0
Challenge: Day 29 – Naïve animals scored 0; Test animals score 0.5-1.0.

Conclusion: The test substance produced no reaction in either in Test animals or Naïve control animals and therefore not a skin sensitizer.